Space Weather Forecast

Issued on Friday, 05 April 2024 at 13:25 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: No significant activity

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Low with only one common class flare observed from just over the southeast limb. There are seven sunspot regions on the disc, and while they remain small and simple, slow growth is evident across the disc. The largest region is a benign mature unipolar spot.

A number of CMEs (coronal mass ejections) were observed leaving the Sun, however these are all missing Earth, originating from around the solar limbs or from the far-side.

Solar Wind / Geomagnetic Activity: A waning high speed stream was observed, due to Earth gradually leaving the faster solar winds from a coronal hole. The solar wind speed was initially slightly elevated, at 450km/s, but rapidly increased to be elevated at near 550km/s around 04/1710UTC, then easing to slightly elevated at around 450 km/s again by 04/2100 UTC. Solar winds then eased to near 400km/s by the end of the period. Total Interplanetary Magnetic Field (IMF) strength was Moderate with the north-south component mainly moderately negative (southward) with brief periods of positive (northward). Geomagnetic activity was Quiet to Unsettled (Kp2-3).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) was at background levels with no solar radiation storms observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Low to Very Low activity is expected, with a slight chance of isolated M-flares. This chance increasing slightly through the period with any further development, or new regions rotating onto the Earth-facing Sun.

Solar Wind / Geomagnetic Activity: No Earth-directed CMEs. Solar winds are expected to gradually ease to background days 1-3 (05-07 Apr). A further weak coronal hole enhancement is possible day 4 (08 Apr) however this is unlikely to be significant, with winds perhaps rising to be slightly elevated for a time. Geomagnetic activity is forecast to be Quiet with Unsettled spells day 1 (05 Apr), with a decreasing chance of Active intervals. Mainly Quiet activity is expected through Days 2-4 (06-08) but with a chance of Unsettled to Active intervals day 4 (08 Apr).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is expected to remain at background levels.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	5	1	1	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	10	20	20	30
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	1	1	1	1
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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